

**WHAT IS CLAIMED IS:**

1. A method for reducing the risk of relapse of a B-cell-related disease in a patient receiving a bone marrow or peripheral blood stem cell transplant comprising treating said transplant *in vitro* and/or *in vivo* with an amount of an anti-CD20 antibody effective to reduce (purge) the number of disease-causing CD20 antigen-expressing cells therein.
2. The method of Claim 1, wherein said disease is a B-cell lymphoma or leukemia.
3. The method of Claim 1, wherein said purging is effected *in vivo* by administering RITUXAN® no later than about one month after transplant.
4. The method of Claim 1, wherein RITUXAN® is administered at a dosage ranging from about 0.1 to 20 mg/kg about one week after transplant.
5. The method of Claim 4, wherein the patient receiving the transplant has previously been treated under conditions designed to eradicate disease-causing B-cells.

6. The method of Claim 4, wherein said patient has previously been subjected to a treatment protocol selected from the group consisting of whole body irradiation, RITUXAN® immunotherapy, chemotherapy, cytokine therapy, radioimmunotherapy, or a combination thereof.